

Analysis of Weekly Newsletters: Initial Report

Executive Summary

Questions of Interest

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Statistical Analysis

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Takeaways

- The next two reports, “Trends in the Open Probability” and “Trends in the Click Probability,” will delve further into how various factors affect the open and click rate.

Overview of the Data Used

Newsletter level (as opposed to subscriber level)

We focus on 54 newsletters, sent roughly weekly in the years 2019 and 2020. For this initial report, we look at aggregate statistics for the newsletters.

Below are 5 example newsletters from the dataset, containing the four “content” variables mentioned above. The last variable, clicks, is the response variable of interest. 1 indicates that the subscriber clicked on any link in a given newsletter; 0 indicates that the subscriber didn’t click on any link in a given newsletter.

subject	datetime	contacts	condesc	domins	since	subject_highlight	opened	clicks	source	subscribes
(Almost) Summer Service, Food that Fuels Good - May 2019 Activate Good News	2019-05-01 15:21:00	10333	Before	Spring	921	75	13	17.97	1.20	0.69 0.19
9/11 Day of Service, Volunteer Highlights, and more. Check out our August News!	2019-08-05 07:50:00	10219	Before	Summer	470	79	13	16.66	1.43	0.55 0.28
Help get art supplies to kids + more volunteer needs!	2020-06-05 07:50:00	11478	After	Summer	470	53	10	17.38	2.64	0.54 0.08
United We Help: Volunteer, Learn about local causes, and more this September	2020-08-19 07:05:00	11782	After	Summer	425	76	12	16.53	1.99	0.57 0.14
Headshots for Good, Hunger & Homelessness Week, Town Hall, and more!	2020-11-11 06:51:00	13031	After	Fall	411	68	11	18.30	3.05	0.68 0.14

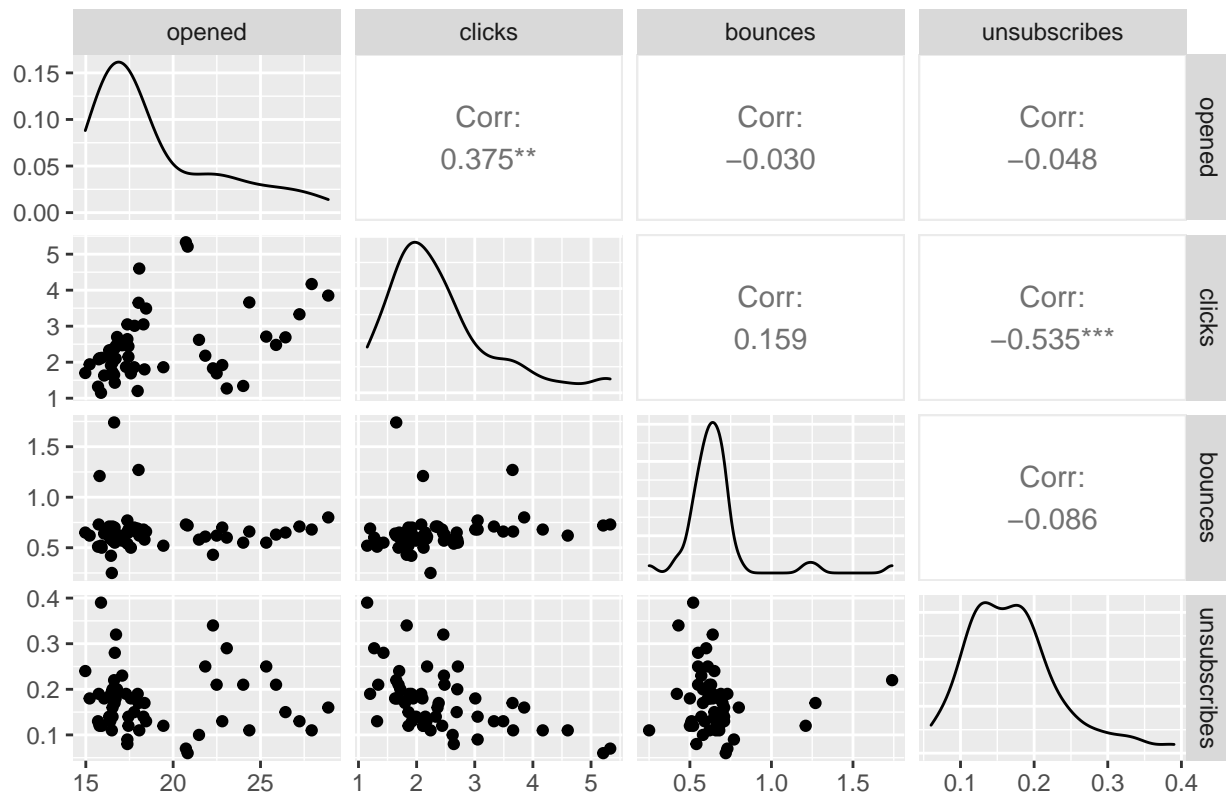
Correlation of the Metrics

The open percentage is

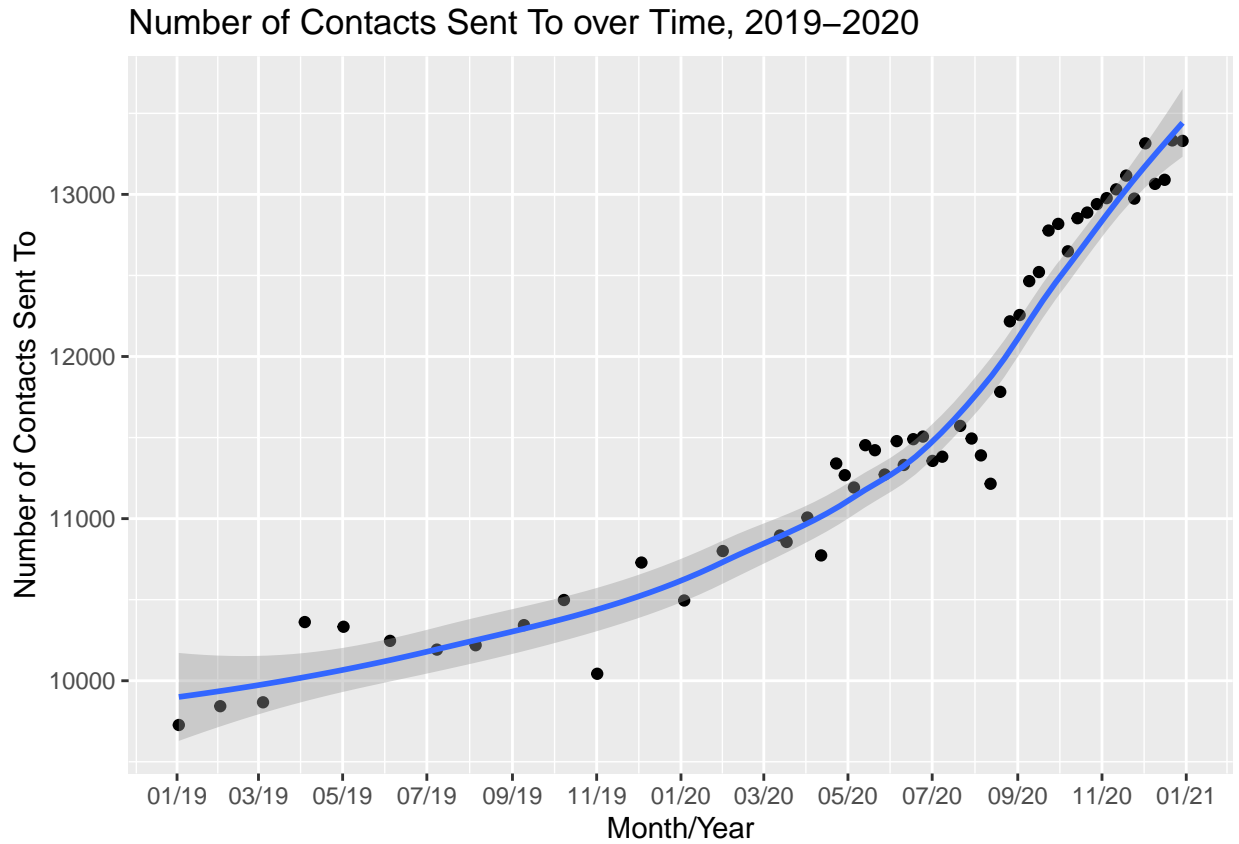
$$\text{Open \%} = \frac{\text{number of contacts who opened the email}}{\text{number of contacts sent to}} \times 100\%$$

The other metrics, i.e. clicks, bounces, and unsubscribes, are similarly defined.

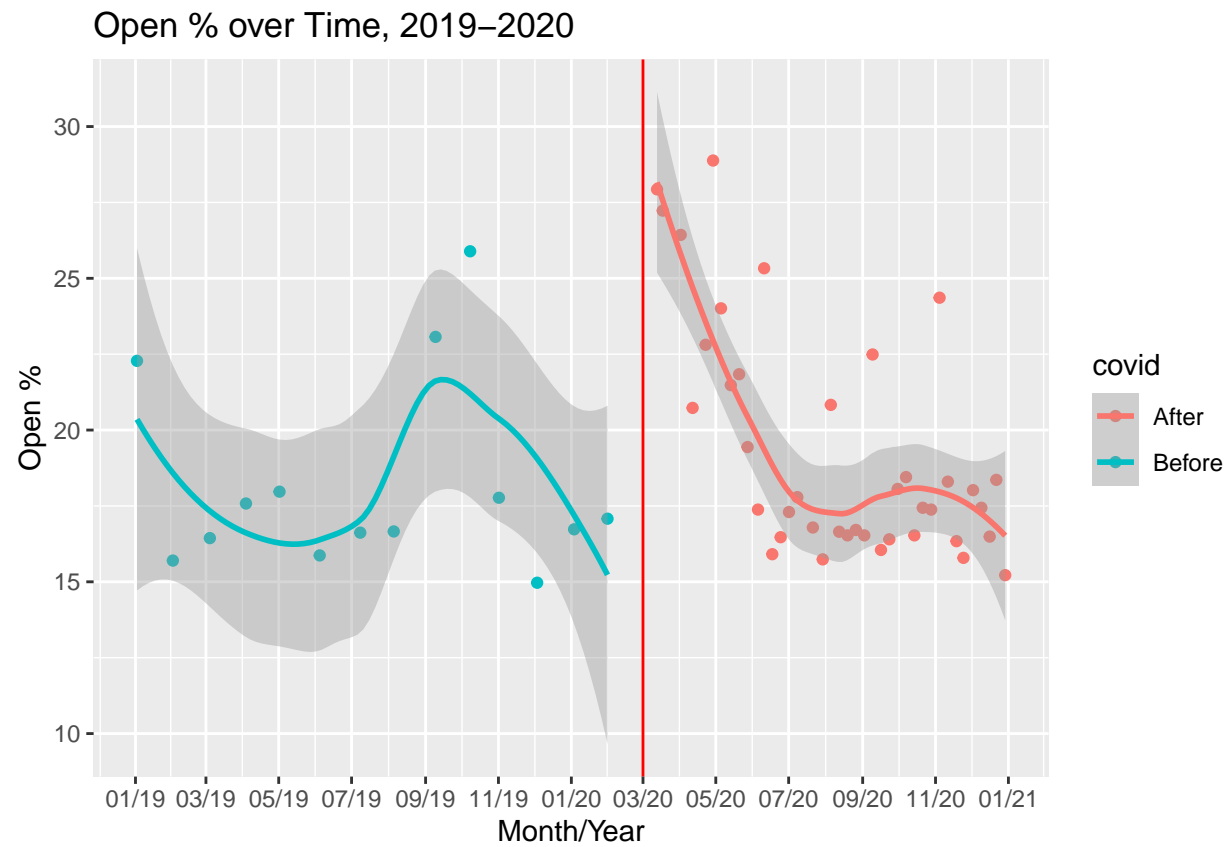
Correlogram of the Metrics



Summary Statistics over Time, 2019-2020

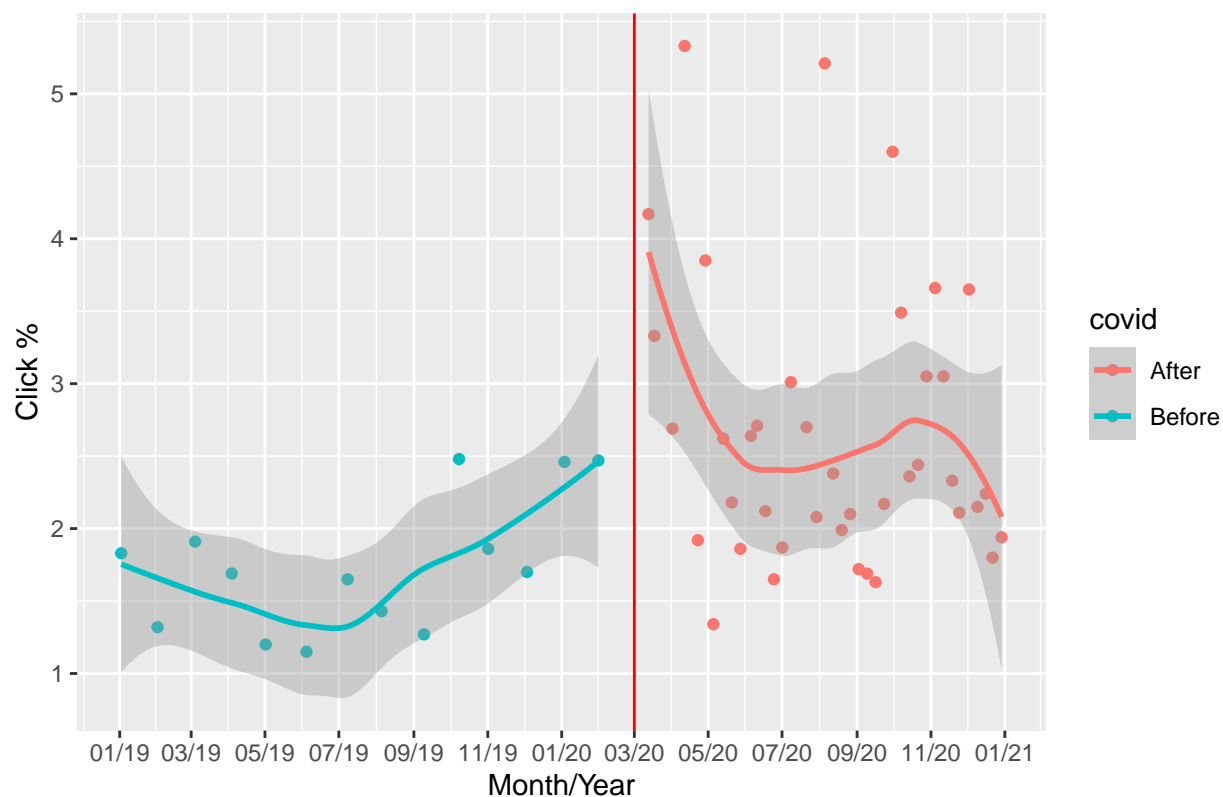


When did the pandemic start changing things? The March 12 weekly newsletter was the first one to mention the COVID-19 pandemic and remote volunteering opportunities.

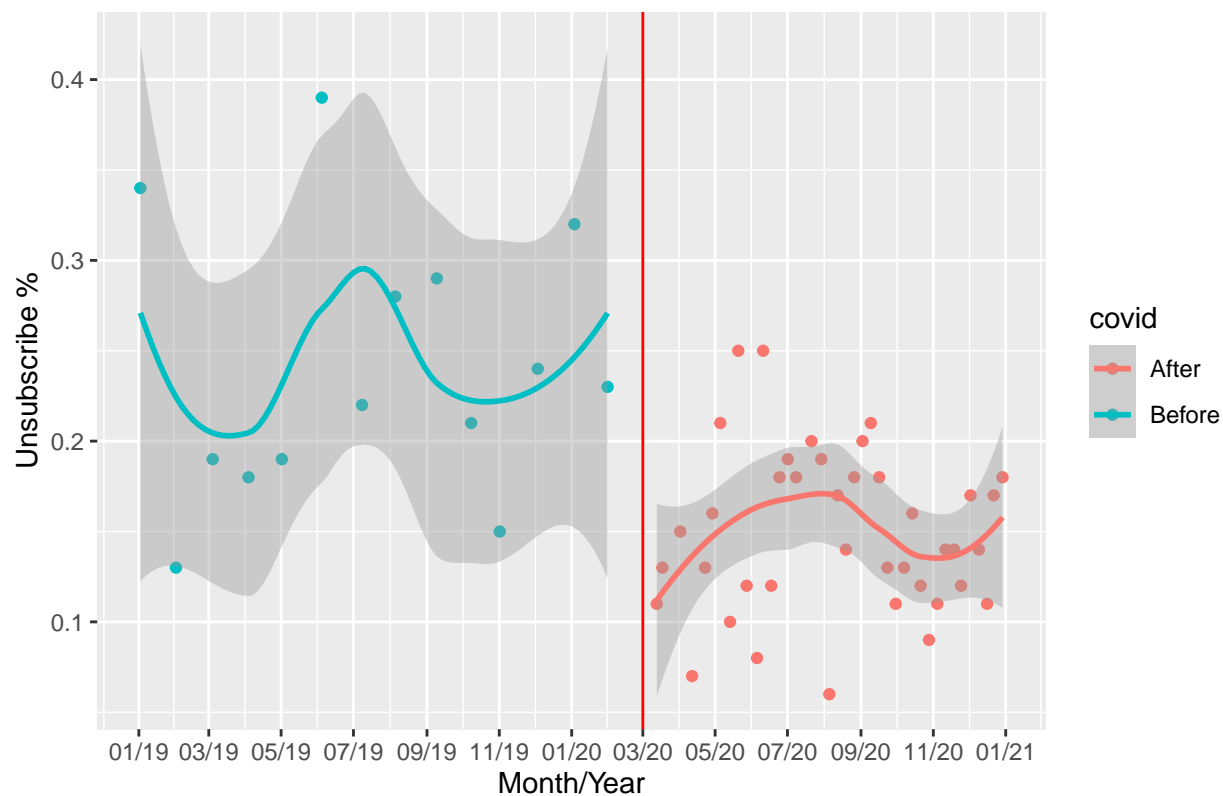


There is a spike in the open % after March.

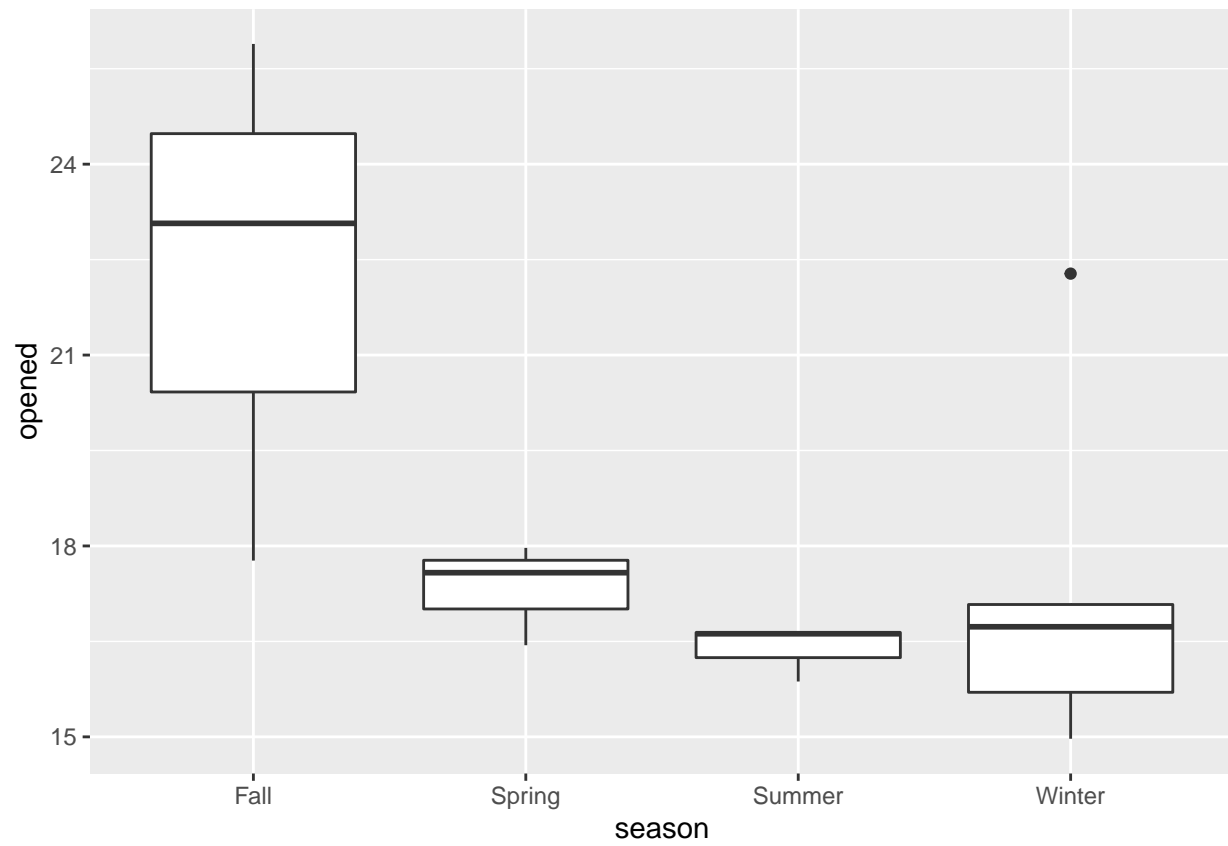
Click % over Time, 2019–2020

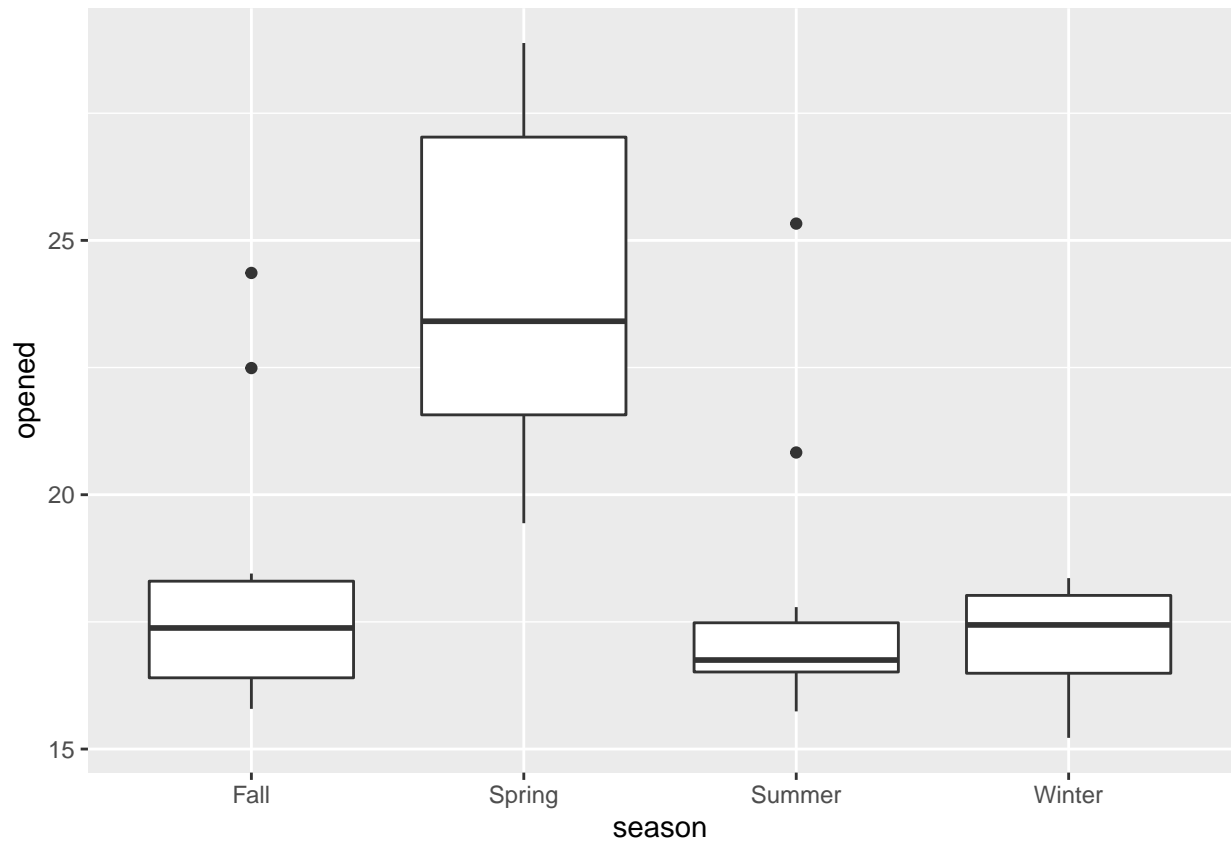


Unsubscribe % over Time, 2019–2020

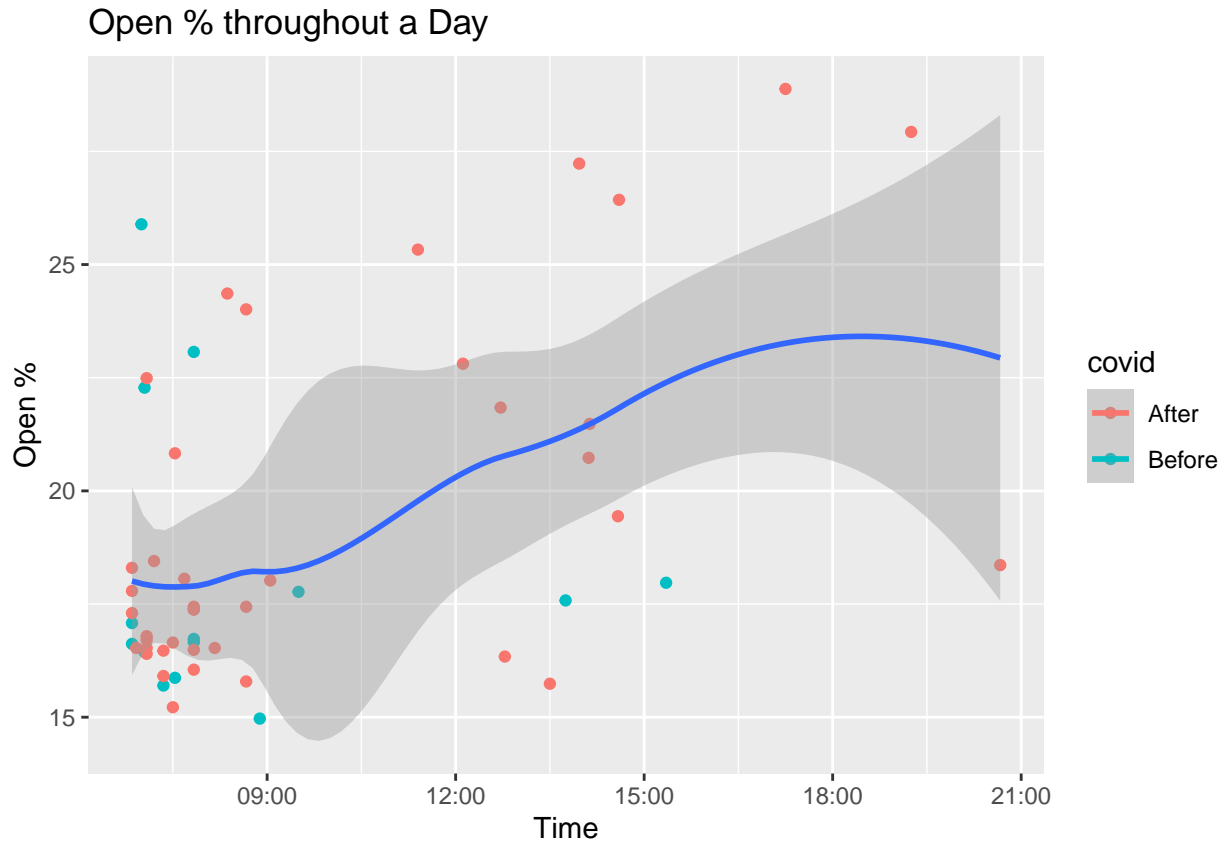


Summary Statistics by Season





Summary Statistics throughout a Day

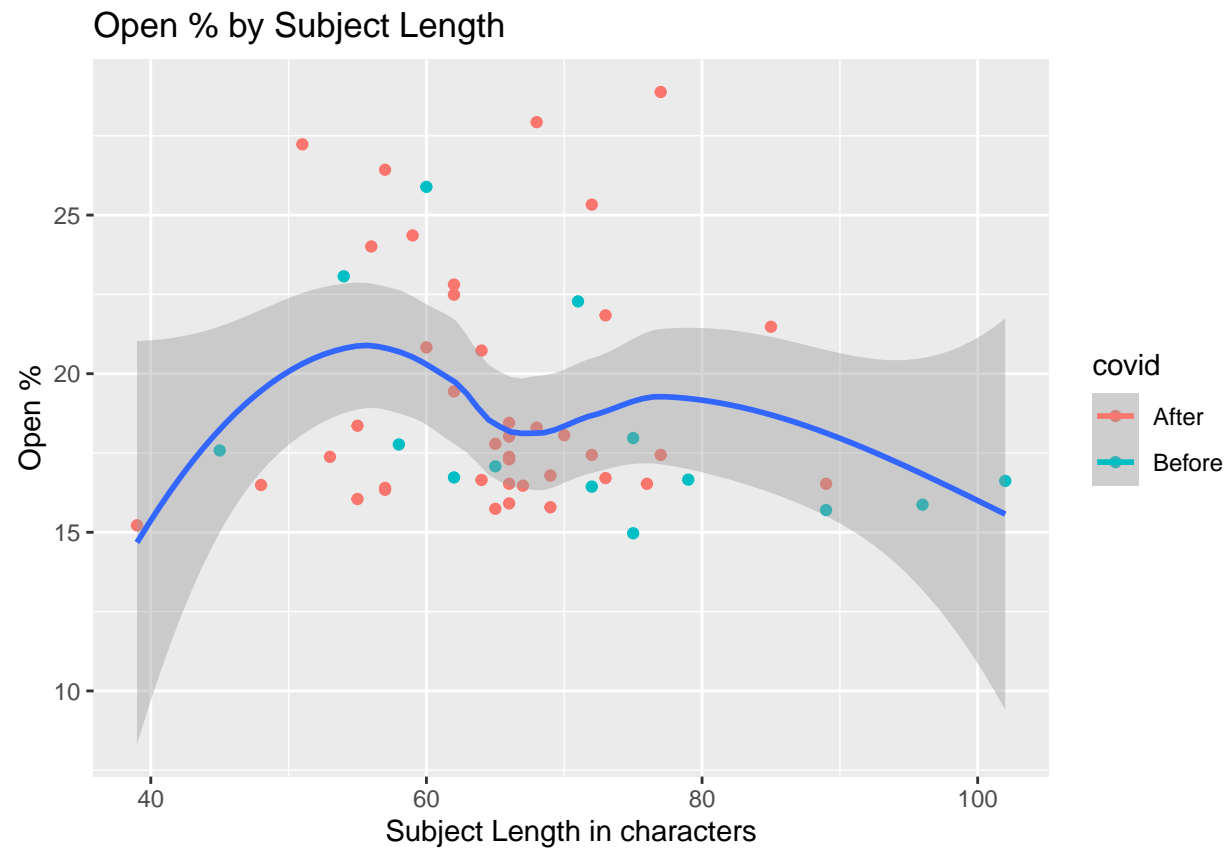


There may be a slight upward trend.

Effect of Subject Headings

Summary Statistics for number of characters within subject heading

##	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
##	39.00	59.25	66.00	66.57	72.00	102.00



Plotting by the number of words yields a similar plot.

Small speculation: if subject heading is too long, it may not fit in the email browser and thus lead to less opens.